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**THE UNITED STATES ARMY'S PREPAREDNESS TO CONDUCT  
URBAN COMBAT: A STRATEGIC PRIORITY**

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USAWC STRATEGY RESEARCH PROJECT

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TO CONDUCT URBAN COMBAT: A STRATEGIC  
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**ABSTRACT**

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It is increasingly likely that the United States Army will conduct future contingency operations in urban terrain. This is a function of increased urbanization worldwide, our reliance on power projection from the United States, and modification of potential threat tactics. Currently, the Army is unprepared to operate successfully at the operational level and, in many cases, at the tactical level of urban combat. Future defense budget reductions will continue to put increasing pressure on the U.S. Army to reduce end strength and delay force modernization. Further reduction of our combat arms capability will degrade an already serious strategic vulnerability: our army's ability to conduct large-scale or prolonged urban combat while maintaining the support of the American people. This paper will build a case for our need to prepare for future urban combat and make recommendations for conducting successful operations in this challenging environment, such as improvements to our urban combat doctrine, training priority and training facilities, leader development, force modernization, and organization for combat.



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It is increasingly likely that the United States Army will conduct future contingency operations in urban terrain. This is a function of increased urbanization worldwide, our reliance on power projection from the United States, and modification of potential threat tactics. The Army has not participated in operational level contingencies since World War II. It is currently unprepared to operate successfully at the operational level and, in many cases, at the tactical level of urban combat. These weaknesses in our force preparedness, if tested by a potential adversary, represent a strategic weakness that could lead to our defeat in a future theater of war.

Many military analysts believe the answer to achieving future combat dominance is primarily a function of more accurate delivery of large scale aerial weapons. But, urban combat will negate many of the technological advantages our forces currently possess or will possess in the near future. This study assesses our need to prepare for future urban combat and offers recommendations for successful operations in this challenging environment. The stakes currently are particularly high, especially in view of the ongoing deliberation of force structure in the current Quadrennial Defense Review (QDR) and the National Defense Panel (NDP). Future defense budget reductions will continue to put increasing pressure on the Army to reduce end strength and delay modernization. Further reduction of our combat arms capability will degrade an already serious strategic vulnerability: our army's ability to conduct large scale or prolonged urban combat while maintaining the support of the American people.

Urbanization of the world continues at a rapid rate. In 1993, the world had 286 cities of over 1 million in population. By the year 2000, over 40% of the world's

population will be in urban areas, with Third World countries having 17 of the 25 most populous cities.<sup>i</sup> The strategic importance of these cities will continue to grow to the extent that control of a major city in many cases may be key to control of a country. Rapid growth in Third World trouble spots will increase the likelihood of political and social unrest and concomitantly the chances of U.S. military deployment and employment.

Power projection operations of the U.S. military will also increase the probability of urban combat operations. Aerial ports and sea ports of debarkation are often located in urban areas. Control of such vital facilities will require ground operations to open these facilities and to keep them open for sustainment of a campaign. U.S. military ground operations in Somalia, Haiti, and Bosnia offer the most recent examples of the link between power projection and urban operations.<sup>ii</sup>

Potential adversaries will modify their strategy to address U.S. military vulnerabilities. A key lesson learned by our adversaries in the Tet 1968 Battle of Hue, Vietnam, and U.S. operations in Somalia is that urban combat denies certain advantages to a better-equipped adversary.<sup>iii</sup> Urban areas, with their construction and density of non-combatants, often limit the effectiveness of externally delivered firepower. These two battles indeed contributed to the strategic defeat of the United States, both eroding public support of the American people at home due to U.S. casualties and closer scrutiny of the mission. This superficially “revealed” U.S. forces as either hopelessly beleaguered or as wanton destructors of all that is civilized (which etymologically means “cityfied”).

The Russian experience in Chechnya offers another case in point. A force of 60,000 Russian soldiers engaged 12,000 Chechnian rebels in and around Grozny. Russian forces depended on massive firepower to obtain their objectives, delivering extensive collateral damage and large numbers of noncombatant casualties. Although the Russians eventually won the campaign, the war resulted in strategic defeat at home and political losses in the world community.

Urban terrain offers the defender a significant advantage, which he can exploit to cause a large number of casualties for the attacker. "Urban terrain is the great equalizer."<sup>iv</sup> Our force projection military operations in the future will likely put our forces more in the offensive than defensive mode. The least powerful adversary in all three historical cases cited above were on the defensive in their own urban terrain. They sought to minimize the advantages of firepower and technology, while maximizing the number of casualties suffered by their adversary.

Only a foolish enemy would repeat the mistakes of Saddam Hussein during Operation Desert Storm by directly challenging U.S. or other coalition firepower and technological advantages in open terrain. Threat forces of the future will attempt to focus their efforts on our strategic vulnerability: U.S. casualties and the will of the American people. FM 100-5 aptly states the case: "The American people expect decisive victory and abhor unnecessary casualties. They prefer quick resolution of conflicts and reserve the right to reconsider their support should any of these conditions not be met."<sup>v</sup> The formula of a quick decisive victory on behalf of an acceptable cause with broad public support may dissolve if U.S. forces are dragged into protracted urban combat far from

home. Although patience is normally required for success, U.S. forces face extreme pressures to achieve quick victory with minimum casualties in conditions not conducive to either. Future adversaries will exploit opportunities to level the playing field with U.S. forces by choosing urban terrain as a potential battlefield.

Given the likelihood of future urban combat, the U.S. Army remains unprepared to successfully conduct sustained urban combat at the tactical and operational levels. Intense urban combat against a determined adversary would result in unacceptable U.S. casualties, or unacceptable civilian casualties and collateral damage, or all of these. We are unprepared to undertake urban combat without the use of massive firepower that could cause a politically unacceptable level of damage and casualties, without bringing quick, decisive victory. Twelve years ago, the Defense Science Board reported:

Our forces are not trained adequately, equipped appropriately, or structured suitably to operate in the ubiquitous urbanized terrain and fail to exploit fully their unique characteristics...Regarding equipment problems, it is clear that virtually none of our items are designed and engineered with urban warfare in mind...Urban warfare should not be considered so specialized a concern that it consistently slips below the budget cutoff line...Although urban warfare is principally an infantryman's job, it clearly will involve a combined arms force.<sup>vi</sup>

I believe the Defense Science Board findings remain valid today. These deficiencies are caused by incomplete and outdated doctrine, lack of training priority, insufficient urban training facilities, insufficient leader development, lack of modern equipment for the forces most likely to conduct urban combat, and improper organization for combat. This study explores each of these causes of our unpreparedness and offers recommendations for radically improving the situation.

## URBAN COMBAT DOCTRINE

The U.S. Army's incomplete and outdated doctrine, the capstone doctrinal manual for operations, FM 100-5 (June 1993), affords only one paragraph to urban combat:

Urban operations present unique and complex challenges to Army forces. Urban operations can occur in any of the geographical environments. They can constrain technological advantages; they impact on battle tempo; they force units to fight in small decentralized elements; they also create difficult moral dilemmas due to the proximity of large numbers of civilians. Commanders must enforce discipline in their operations to minimize unnecessary collateral damage and civilian casualties. FM 90-10 discusses fighting on urbanized terrain.<sup>vii</sup>

This obvious lack of priority on urban combat is disturbing, since urban combat is addressed doctrinally only as a special condition under which we might fight. We may fight in jungle, desert, or mountain warfare conditions, but we will most certainly fight in urban areas wherever we are deployed in the future.

The referenced manual for urban combat, FM 90-10 (August 1979), advises that "urban combat operations are conducted only when required." In fact, it recommends avoidance of urban combat: "built-up areas are isolated and bypassed rather than risking a costly, time consuming operation in this difficult environment."<sup>viii</sup>

The historical examples of the Battles of Stalingrad and Berlin during World War II provide compelling rationale and historical precedent for this doctrine. The city of Stalingrad consisted of 600,000 people stretching over 25 miles along the Volga river. During the battle, three Soviet armies consisting of over 1 million soldiers, encircled 20 German and 2 Romanian divisions. This battle of attrition lasted for seven months, with the Russians suffering 750,000 casualties, while the Germans and other Axis powers were losing 850,000. In the Battle of Berlin, a Soviet force of 2.5 million attacked a German

force of 300,000, resulting in 102,000 Russian dead and 195,000 wounded. German casualties were probably proportionally twice those of the Soviets.<sup>ix</sup>

The U.S. military is simply not large enough to conduct offensive urban operations of this magnitude on the ground; nor is the American public likely willing to pay such a heavy price in American lives. FM 90-10 is a tactical level manual that does not address Military Operations Other Than War (OOTW) in urban environments. It likewise fails to consider operational levels of war. Our doctrine needs to go beyond central European urban terrain; it must be revised to reflect our force projection focus. FM 90-10 must also expand its scope beyond a simplistic treatment of a city as terrain: "A city is a system of systems that perform individual and collective functions for the community."<sup>x</sup> A current and realistic treatment of urban combat doctrine in FM 90-10 would assist in guiding our future urban combat operations to success.

FM 90-10-1, An Infantryman's Guide to Combat in Built-Up Areas (October 1995), explains the importance of cities. It presents a limited list of why forces should operate in urban terrain: (1) Certain built-up areas contain strategic, industrial, transportation, or economic complexes that must be secured, and capitals and cultural centers that can be defended for psychological or national morale purposes. (2) The worldwide increase in urban areas has made them impossible to avoid. (3) A well-trained force defending a urban area can inflict major losses on a numerically superior attacker. (4) Aerial photography, imagery, and sensory devices cannot detect forces deployed in cities.

FM 90-10-1 provides reasonable doctrinal guidance at the tactical level for infantry units; it further discusses combined arms operations in urban terrain. However, the Army's or DOD's apparent lack of interest in written doctrine in urban combat for branches other than infantry is deeply disturbing. One may conclude from the absence of doctrine that dismounted infantry, the least modernized entity on the battlefield, is expected to fight and win in the most unforgiving terrain on earth, urban terrain.

The distinction between operational and tactical levels of war in urban combat is especially vague in U.S. Army doctrine: "Operational depth in a predominantly rural environment is likely measured in the tens or hundreds of kilometers; in a city, such depth could be single digit numbers of kilometers or several city blocks."<sup>xi</sup> Although FM 90-10-1 offers a good start towards documenting our tactical doctrine for urban warfare, much work remains for the entire combined arms and joint community.

## URBAN TRAINING AND LEADER DEVELOPMENT

The second deficiency in our preparedness to conduct urban combat is training and leader development. Shortcomings in this area are evident in the lack of standardized tactics, techniques, and procedures for urban combat, the lack of a U.S. Army urban combat school, lack of suitable training facilities and simulation opportunities, minimal integration of urban combat scenarios into the Combat Training Centers (CTCs), and a general lack of training priority on urban combat throughout the service school systems.

Two of the best trained U.S. Army units in urban combat, the Berlin Brigade and the 7th Infantry Division (Light), have deactivated in the past five years. The urban combat training programs associated with those units no longer exist. Other units have adopted the tactics, techniques, and procedures outlined in FM 90-10-1 and the Close Quarter Combat Drills developed by the U.S. Army Special Forces, but urban combat techniques vary significantly between units. The U.S. Marine Corps operates an urban combat training course at Camp Pendleton that allows Marines to develop standardization and consistency of tactics, techniques, and procedures across the Marine Corps. The Army has no such course due to resource constraints. Further, limited slots at the Marine Corps course severely limit the number of Marine-trained Army experts. Integration of urban combat training into U.S. Army Infantry courses such as the Infantry Advanced and Basic Officer and Non-Commissioned Officer Courses is improving, but this initiative remains insufficient to meet the need. Urban combat training in other than Infantry and Special Forces branches is currently a low or non-existent priority.

Urban combat training facilities that are normally useful to battalion-sized units and below are expensive to build and maintain; they often fall prey to budget cuts. The Joint Readiness Training Center (JRTC), the premier CTC for light forces, has invested heavily in light force urban combat training. The JRTC has developed a state-of-the-art Third World urban combat facility, numerous villages in the field training exercise area, and several urban combat livefire ranges. A light infantry unit can expect to rotate through the JRTC about every two years, so extensive home station training facilities are needed to sustain these highly perishable urban combat skills. The National Training Center (NTC) and the Combined Maneuver Training Center (CMTC), both designed for heavy force training, have minimal training facilities for urban combat and provide minimum emphasis. Thus by default, urban combat seems to be a light infantry problem according to the Army's training opportunities. But, light forces alone cannot win in urban combat. As we have seen in Somalia and all other urban combat we have participated in, a mix of highly trained heavy and light forces is required to succeed.

Simulation of urban combat for large-sized units, brigade and higher, is insufficient or unavailable. Since it is probably not feasible to exercise large size units in urban terrain except in real world contingency operations, the Army needs realistic simulations to maintain combat readiness at the brigade level and higher. Integration of urban combat scenarios into the U.S. Army Battle Command Training Program and the Unified Endeavor exercise program at Atlantic Command would provide a good start towards improving the combat realism of these exercises. This initiative would quickly indoctrinate our junior and senior leadership in meeting the challenges of urban combat and better prepare them for future war.

## URBAN FORCE MODERNIZATION

The U.S. Army faces numerous training challenges, but none except for missile defense and anti-terrorism should share the priority of effort with our preparation for urban combat operations. In order to be trained and functional in urban combat, our ground forces will need modern equipment as well as updated doctrine.

Further, our ground combat forces desperately need modernizing. Modernization must include sensors that will find the enemy without exposure to enemy fires, precision fires deliverable by ground forces, room and building clearing capability, enhanced force protection capability, and modernized command and control that is functional in urban terrain.

Current aerial sensors at the tactical, operational, and strategic levels are inefficient at detecting and acquiring enemy targets in an urban environment. Current sensors cannot see through walls, roofs, other building materials, and ground clutter. Urban areas thus provide ideal hiding spots for forces without a technological edge. Ground and air combat forces need the ability to see through buildings with some form of X-ray or other technologies to detect and acquire targets and then to classify those targets as friendly or enemy while not harming friendly forces or non-combatants. Current satellite imagery for targeting enemy forces in an urban environment is insufficient. Small unmanned aerial vehicles (UAVs) may assist in this requirement to find the enemy by achieving close range detections within the same building or adjoining buildings.

Land navigation and targeting in urban terrain are extremely difficult for combatants, especially during periods of limited visibility. Standard 1:50,000 scale

military maps are relatively useless. They do not provide the close detail needed for urban operations. Commanders operating in urban terrain normally require satellite imagery and detailed city maps for buildings, streets, and city substructure. Unavailability of such resources in previous contingency operations reduced the combat effectiveness of participating units. We should have these materials available for likely areas of deployment. Additionally, these products should be digitized to allow computer access and continuous updating.

The inability of current global positioning system (GPS) technology to provide accurate grid locations in urban terrain further hinders navigation and accurate targeting. This will remain a major obstacle to the delivery of precision fires in urban areas until more accurate position location capability is made available. Artillery forward observers, naval gunfire liaison personnel, and air force tactical air control parties all need accurate grid coordinates from GPS to effectively employ their supporting weapons in urban areas. Current GPS falls well short of this requirement.

Precision fires delivered by air and ground forces in urban combat are key to the success of the mission. Detecting, acquiring, and engaging enemy targets from extended distances in an urban environment is difficult; it poses the risk of fratricide and harm to non-combatants. Urban combat often consists of fighting at very close distances, room to room within a building, or from one building to another building a few meters across a street. Minimizing fratricide and collateral damage and hardship to non-combatants during war and MOOTW remains a high priority with our military and civilian leadership. In war, employment of massive firepower generally needed to accomplish the

mission and minimize friendly casualties may be appropriate; in MOOTW it is normally not appropriate. Such MOOTW missions as Operations Just Cause in Panama and Restore/ Continue Hope in Somalia were light infantry intensive with minimal support from heavy firepower due to the imposed rules of engagement and the difficulty of separating combatants from non-combatants.

Although avoidance of collateral damage and harm to noncombatants is paramount for MOOTW, the avoidance of this damage is also desirable in general war situations. Minimizing damage is desirable not only in building and maintaining the support of non-combatants in the area of operations, but it also reduces the requirement for infrastructure repair upon conflict termination. The key to avoiding excessive damage while achieving mission success is getting precision firepower into the hands of our ground combat forces. This would allow less reliance on large scale weapons, which by their nature are often difficult to employ in cities without posing fratricide risks and destroying more of a target than necessary. Consider the requirement to reduce an enemy position in a certain room or floor of a building without destroying the entire building or blocks of buildings with large scale weapons. Precision engagement from ground forces also offers the benefit of minimizing rubble that creates obstacles to friendly force movement. Our objective in urban combat should be to defeat or destroy enemy forces, while minimizing collateral damage.

The great reliance and advantage our forces derive from massed indirect fire support on the conventional battlefield does not necessarily hold for urban combat. Artillery engagement in urban combat germainly challenges direct fire systems. First,

current artillery trajectories prevent the accurate engagement of many targets due to surrounding structures. Current laser-guided munitions launched from field artillery go awry because of ground clutter and structural masking of terrain. Second, employment of field artillery in the direct fire mode often denies protection for the crews. Third, the inaccuracy of GPS in urban areas degrades the ability of artillery to deliver precision fires. Additionally, calls for fire from forward observers are vulnerable to communications difficulties due to terrain masking and can delay responsive fire support.

Improved conventional munitions (ICM), which are now the focus of artillery munitions improvements, are designed to be extremely effective against targets in open terrain. Current ICMs employed against targets in urban terrain will be of limited utility due to their inability to adequately engage targets behind construction material. Given these shortcomings and the likelihood that artillery will cause significant collateral damage, current artillery technology must be significantly improved before it can be a full player in precision-delivered fire support in urban combat.

Infantry mortar weapon systems enjoy the advantage of having a higher trajectory than field artillery; therefore they suffer less from terrain masking difficulties. However, many of the limitations listed above associated with artillery systems also apply to mortars. Mortar positioning in urban areas is often limited by the unavailability of ground suitable for mortar base plates. Nevertheless, the responsiveness of mortars to units in contact makes them a high priority system for upgrade. The enhancement of mortar systems with fiber optic guided missile technology (FOG-M) may provide precision fire support to the ground commander. With this technology, a gunner could

guide a projectile through urban terrain to destroy a specific target with less probability of collateral damage. FOG-M or other guided projectile technology may also be added to field artillery systems to improve their accuracy on the urban battlefield.

Precision fires delivered by fixed wing and rotary wing aircraft in urban combat can be very effective; they do not suffer the same trajectory constraints as indirect fire systems and are often able to effectively deliver large quantities of ordinance. But in urban areas, they have difficulties in targeting, in marking targets and friendly locations; in flight profiles around large buildings, power lines, antennas, and collateral damage. Aviation assets may be forced to fly at low altitudes due to enemy air defense systems, which compounds the difficulty of operations due to ground clutter and the vertical dimension of urban terrain.

Laser designators for Air Force tactical air control parties (TACPs) require thorough testing in urban areas. Enhanced, they may be able to guide bombs through heavy obscurants and ground clutter. The potential for fratricide and collateral damage necessitates improvements in the accurate delivery of ordinance from airborne platforms.

The role of tanks and infantry fighting vehicles (IFV) in providing direct fire support in urban combat is critical. As the Russians recently discovered in Chechnya, current armored vehicle technology is vulnerable to anti-tank fire in urban terrain. In their initial attempt to seize Grozny with tanks and personnel carriers, the Russians lost 105 of 120 tanks and IFVs before consolidating their gains.<sup>xii</sup> Tanks and IFVs are especially vulnerable to top attack due to limited overhead armored protection. Future tanks and IFVs will need more advanced armored protection, greater crew visibility, and

an enhanced ability to communicate with surrounding dismounted elements. Current tanks and IFVs have no available external communications means except radio. IFVs will be essential to supporting and transporting dismounted soldiers under armor around the battlefield and to providing critical armored medical evacuation. This requirement surfaced in Somalia, where U.S. Bradley Fighting Vehicles and other coalition IFVs transported light forces to their objectives and provided medical evacuation for casualties in Mogadishu.

Dismounted forces will be responsible for conducting the bulk of urban combat in the foreseeable future. The individual soldier will need significant upgrades to his weaponry and equipment to fare successfully on an increasingly lethal and unforgiving battlefield. The U.S. Army's land warrior program has been designed to enhance the dismounted soldier's lethality, survivability, mobility, sustainability, and command and control. This program consists of five subsystems: the weapons system; the computers and radios; the integrated helmet assembly; protective clothing and individual equipment; and the software. All of these subsystems must be designed to withstand the rigors of urban combat.

Dismounted soldiers require compact individual and crew-served weapons that can deliver a high volume of accurate fire. They must be able to engage targets during day or night, and under obscured conditions. The absence of ambient light in much urban construction requires that dismounted forces be equipped with thermal imaging systems. We must continue to exploit our night vision advantage over potential enemies, as it is one of our greatest combat multipliers.

Improvement of marksmanship in urban combat is essential to dominating potential enemies. Improvements to long-range sniper weapons to make them all-weather capable is long overdue. Short-range precision small arms engagements within buildings and rooms need particular attention. Weapons that shoot a pattern of submunitions would be extremely effective in close quarter combat. It is feasible to design submunitions to be very lethal for wartime contingencies, yet non-lethal for MOOTW. Enhancements must decrease risks of fratricide by minimizing ricochet problems associated with current small arms systems fired at urban construction material. Individual and crew served weapons must be lightweight to allow dismounted soldiers to aggressively conduct battle drills while under a minimum load.

In addition to their need for upgraded individual and crew served weapons, dismounted soldiers require an individually fired weapon designed to defeat enemy soldiers behind walls and also to produce entry holes into adjoining rooms or buildings. The Multi-Purpose Individual Munition (MPIM) is an Army system under development over the past 15 years; it will meet this requirement. MPIM would greatly enhance our capability to conduct urban combat operations, since no fielded antiarmor systems are capable of defeating dense urban construction material, producing entry holes in buildings, as well as defeating armored vehicles. MPIM would give the dismounted soldier a huge advantage now available only to tanks, artillery, and other large scale munitions. MPIM has suffered from a lack of funding priority long enough; we need its capability to succeed on the urban battlefield.

The U.S. Marine Corps has adopted a more near term approach to solving this problem by fielding the Shoulder Launched Multi-Purpose Assault Weapon (SMAW). Although not as diverse as MPIM, the SMAW can destroy bunkers and has a limited capability to produce entry holes in urban construction materials. If the U.S. Army cannot afford to field MPIM, we must pursue fielding of SMAW to fill this void in urban combat capability.

We have noted limitations on our current capability to deliver effective precision fires in urban combat while minimizing collateral damage. We must also significantly improve our ability to gain entry to buildings and clear buildings with minimum friendly casualties. Other systems in addition to MPIM are necessary for success in urban combat.

The computer/ radio subsystem component of the land warrior program is essential to effective command and control of forces in urban terrain. Current communications gear fails to facilitate command and control in urban areas. Radio communication within buildings is often degraded or impossible due to line of sight obstructions. Reliable communications equipment that functions in urban areas is necessary at the small unit level. Individual soldiers need the capability to communicate with each other without reliance on voice commands or hand and arm signals that can alert the enemy or cause distraction among clearing teams.

The step beyond this enhanced communications capability is to link soldiers together with audio and video input in an integrated helmet assembly system so soldiers or leaders can see other soldiers' actions in adjoining rooms and buildings. This would

allow small unit leadership to more carefully plan their movement and facilitate command and control. To gain the advantage from the enemy on terrain he knows best, we must link our forces together digitally and share available information in near real time. Audio and visual command and control linkage, along with robotic clearing devices, would further enhance force effectiveness and reduce friendly casualties for forces participating in urban combat. Such an initiative would likely allow our soldiers to dictate the conditions and tempo of urban combat and thus reduce the huge advantage defending forces historically enjoy in urban areas.

Minimizing friendly casualties throughout building entry and clearing operations is essential to our success in urban combat. The protective clothing and individual equipment subsystem of the land warrior initiative need high priority. Light forces are particularly vulnerable to casualties in urban combat and will need augmentation to sustain the fight. The key to achieving this goal is our ability to minimize the soldier's load while providing adequate protection. We must design equipment to be lightweight to maximize soldier endurance and enhance their ability to move quickly on the urban battlefield.

The Army must increase its efforts to acquire effective body armor for dismounted soldiers. The proportion of combat casualties from direct fire infantry weapons could rise from approximately 15% to 50% when the battlefield shifts from the country to an urban area.<sup>xiii</sup>

Current body armor provides inadequate ballistic protection and severely restricts the movements of combatants. Body armor worn in hot weather climates significantly

degrades the combat effectiveness of dismounted soldiers. Addition of knee and elbow padding into the dismounted soldier's uniform ensemble would also assist in protecting soldiers while they operate in the harsh urban environment.

The greatest casualty-producing activities in urban combat are gaining entry to buildings and clearing buildings, for this is almost exclusively a dismounted fight. We must capitalize on emerging technology in order to give our dismounted soldiers the advantage they deserve. Introduction of robotic clearing devices that replace soldiers in that role is a great step forward. Dismounted infantry could follow robotic devices through buildings once these machines gain entry and clear the structure of enemy forces. Robotic clearing devices could minimize the impact of mines and booby traps, which are major casualty-producing weapons in urban combat.

Gaining entry through doorways is a particularly difficult and dangerous task best handled by robots. If this task is to be accomplished by dismounted soldiers, a door entry device would be useful. It should enable dismounted soldiers to enter and clear a room without warning to the defenders. Gaining access to the tops of buildings has always been a difficult undertaking. Our doctrine advises clearing buildings from the top down, but current equipment rarely allows dismounted forces quick access to top floors. Such equipment as air-powered mortars that can fire grappling hooks, smoke, and marking flares would be extremely beneficial to dismounted forces attempting to gain access to top floors.

As revealed in our combat experience in Somalia, U.S. light forces often require armored protection for movement along lines of communication. Unimproved High

mobility Multi-purpose wheeled vehicles (HMMWV) are not suitable for protecting soldiers from small arms fire, antiarmor munitions, or antitank mines. The up-armored HMMWV provides a more robust protection capability, but it is available only in limited numbers. Up-armored HMMWVs provide little or no protection against antiarmor weapons, but they do enhance force protection against other threats. We must make a conscious effort to provide an enhanced transportation capability for light infantry on the urban battlefield - either through up-armored vehicles, support from mechanized forces, or preferably from both.

Another significant force protection challenge to our forces in urban areas is snipers. We need to improve the effectiveness of our own snipers, but we also need to better protect our soldiers against enemy snipers. Most sniper weapons are sighted through sophisticated optics. We need countermeasures to these optics to protect our soldiers where they are vulnerable to sniper attack. A sniper warning system would also warn units when such an attack has commenced.

Future urban combat will require the best weapons and equipment we can field. We must be able to dominate the urban battle space by detecting targets, engaging them rapidly and accurately, moving through and clearing buildings under all conditions, all the while minimizing collateral damage. Upgrading the weapons and equipment of our soldiers will significantly improve our current strategic weakness in preparation for urban combat operations. Although equipment is important, the human element is paramount to success. We must continue to recruit and train the most highly capable soldiers possible.

Urban combat requires soldiers with superb physical endurance who can make proper split second decisions.

Some may argue that with more capable dismounted soldiers, we can afford to field fewer troops on future battlefields. This is not a valid conclusion. We cannot afford to lose any more dismounted soldiers in our current force structure, especially in mechanized and armored units.

## ORGANIZATION / READINESS FOR URBAN COMBAT

The concept of the depopulated battlefield currently being espoused by the Army After Next Study may not be valid for the urban battlefield. In theory, depopulation of the battlefield is based on the capability of future technology to detect, acquire, and destroy targets at extended ranges in all-weather conditions. As discussed previously, urban combat conditions will severely degrade the performance of detection systems, thereby allowing the enemy to successfully operate without detection in urban areas. Given this likelihood, future organizations operating in urban areas must be robust, lethal, and survivable.

The quantity of combat soldiers counts in urban combat. The current trend of reducing the number of units and failing to provide adequate personnel fill is disturbing. Soldiers and leaders must train together over a significant period of time in order to succeed in the complex tasks required in urban combat. Possible implementation of tiered readiness would also affect the performance of lower-tiered units in combat. Due to the complexity of urban combat, personnel and equipment readiness criteria must be kept at the highest possible levels to allow units to properly train.

Future urban combat will require soldiers who are technically capable and mentally and physically tough. The leader to led ratio at small unit levels should remain low due to the leadership demands of urban combat. This ratio should be based on the amount of information that can be processed by a small unit leader and his span of control with subordinates. The U.S. Army's Experimental Force (EXFOR) will have to address the foregoing issues in its series of exercises and experiments. The efficacy of any

proposed solutions will rely on the various capabilities of combat systems and organizations to fight in urban terrain.

Increasing the number of dismounted soldiers in mechanized units will be essential to their success in urban combat. Mechanized infantry units with Bradley Fighting Vehicles (BFV) have an insufficient dismounted capability even when they are at 100% personnel fill. A Bradley squad can dismount seven infantrymen, while a light infantry squad fields nine. In comparison, a U.S. Marine Corps squad fields thirteen dismounted marines. The number of dismounted soldiers directly determines the amount of urban terrain that can be cleared and secured. Bradley units need augmentation with light infantry soldiers when assigned missions in urban areas. Additionally, these soldiers require transportation in BFVs or personnel carriers to get them to combat.

Light forces currently require significant hardening for extensive combat in urban terrain. With significant improvement in their precision firepower and enhanced force protection, light forces would be much more viable. The key to solving this issue will be deciding the balance between maintaining the excellent strategic mobility of light forces while making them more robust. Cross attachment with heavy forces is quite effective once forces have deployed into theater, but deployability considerations detract from the viability of this option early in a conflict. Light forces must maintain their excellent strategic mobility while improving their capability to conduct mounted and dismounted urban combat operations.

## CONCLUSION

Future combat will most certainly require the U.S. Army to fight wars and conduct MOOTW in urban areas. We must develop and implement a coherent strategy for improving our capability to execute successful combat operations in urban terrain. This strategy must include improvements to our urban combat doctrine, training, modernization of equipment, organization of forces, and readiness of forces. We can no longer “assume away” the problem of urban combat. Continued urbanization of the world and our adversaries’ potential to draw us into urban areas to minimize our technological advantages will inevitably expose this strategic weakness. Addressing our deficiencies now could save the lives of many of our soldiers. It could save U.S. forces from an embarrassing and costly defeat in a future theater of war.

#### Endnotes

<sup>i</sup> Russell W. Glenn, Combat in Hell: A Consideration of Constrained Urban Warfare (Santa Monica: Rand, 1996), 3.

<sup>ii</sup> Ibid., 4.

<sup>iii</sup> Ibid.

<sup>iv</sup> LCDR James W. O'Connell, Is the United States Prepared to Conduct Military Operations on Urbanized Terrain? (Newport, R.I. : Naval War College, February 13, 1992), 14.

<sup>v</sup> Department of the Army, FM 100-5 Operations (Washington, D.C.: U.S. Department of the Army, June 14, 1993), 39.

<sup>vi</sup> Defense Science Board, Office of the Under Secretary of Defense for Research and Engineering, Final Report of the Defense Science Board Summer Study on Urban Warfare (Washington, D.C.: January 1985), v.

<sup>vii</sup> Department of the Army, FM 100-5 Operations (Washington, D.C.: U.S. Department of the Army, June 14, 1993), 14-4.

<sup>viii</sup> Department of the Army, FM 90-10, Military Operations on Urbanized Terrain (Washington, D.C.: U.S. Department of the Army, August 15, 1979), 1-1.

<sup>ix</sup> Col Michael Dewar, War in the Streets (Somerset Great Britain: Brunel House, 1992), 22.

<sup>x</sup> Maj Richard M. Francey, The Urban Anatomy: The Fundamentals of a City (Fort Leavenworth, Kansas : U.S. Department of the Army, 1994), 34.

<sup>xi</sup> Russell W. Glenn, Combat in Hell: A Consideration of Constrained Urban Warfare (Santa Monica: Rand, 1996), 16.

<sup>xii</sup> Ibid., 21.

<sup>xiii</sup> Vincent P. Grimes, New Urban Battlefield Calls for Body Armor (National Defense , July / August 1995), 36.



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